

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD  
SAN FRANCISCO BAY REGION

ORDER NO. 94-038

WATER RECLAMATION REQUIREMENTS FOR:

KAISER CEMENT CORPORATION, PERMANENTE FACILITY  
WASTEWATER TREATMENT FACILITY  
CUPERTINO  
SANTA CLARA COUNTY

The California Regional Water Quality Control Board, San Francisco Bay Region (hereinafter called the Board), finds that:

1. The Kaiser Cement Corporation (hereinafter called Producer) filed a report of Waste Discharge dated November 3, 1993 for the use of reclaimed water from the Wastewater Treatment Facility located adjacent to the Producer's property in the City of Cupertino.
2. The Producer proposes to treat and disinfect the sewage generated on the Kaiser Cement Corporation site to acceptable levels at its reclamation facility for reuse as cement kiln flue gas conditioner and for dust compaction. The Producer treats approximately 7,500 gallons per day of domestic sewage generated by the cement plant's employees. No industrial wastewater or stormwater runoff enters the collection system for the Kaiser Wastewater Treatment Facility.
3. The Kaiser Wastewater Treatment Facility was built in the 1940's, and although it is operated by Kaiser Cement Corporation, it is located on adjacent property owned by Kaiser Aluminum Corporation. The facility was originally designed to treat the domestic sewage of 3,000 employees, and presently functions to treat less than 10% of design flow capacity. The facility is made up of five concrete basins and produces a disinfected secondary effluent. Treatment consists of comminution, primary treatment, fixed-film trickling filters for carbonaceous biochemical oxygen demand (BOD) reduction, secondary clarification, and hypochlorite disinfection. Solids collected at the bottom of the primary clarifier are anaerobically digested, and the refractory portion is pumped onto a sludge drying bed adjacent to the facility for infrequent removal. The disinfected secondary effluent flows through a three-inch gravity line to a yellow tank lift station for temporary storage. From there, the treated domestic wastewater is pumped to one of two 1.6 million gallon storage tanks where it is combined with stormwater from the Kaiser Cement site. The plant's water reuse system, shown in Figure 1, also includes collection and reuse of stormwater runoff.
4. Stormwater runoff from the Kaiser Cement facility is regulated under the State Water Resources Control Board (SWRCB) general permit for stormwater discharges associated with industrial activities. Much of the stormwater runoff on the eastern part of the site is collected at the central Water Recycle Tank A pumping station and stored in a holding lake (Pond 11). Stormwater runoff on the western part of the site collects in the bottom of the quarry. Water from the quarry is pumped to Pond 11 when

necessary to allow excavation in the quarry. Overflow from Pond 11 is gravity fed to one of the two 1.6 million gallon reclaimed water tanks, where it is combined with the treated domestic wastewater prior to reuse.

5. The principal reclaimed water use at the Kaiser Cement facility is kiln flue gas conditioning. Flue gas conditioning is the greatest continuous water demand at the plant, requiring approximately 120 gallons per minute. For this use, the combined stormwater and treated domestic wastewater, stored in the two water tanks, is pumped to the cement kiln and is injected directly into the hot exit gas from the kiln, which is approximately 400°C. The purpose of combining the water with the flue gas is to reduce the temperature of the exit gas to 160°C prior to its entering the particulate control baghouse. After the baghouse, the flue gas and water vapor exit from several stacks at 130°C. The reclaimed water is completely vaporized and escapes to the atmosphere.
6. Combined stormwater and treated domestic wastewater in the two 1.6 million gallon tanks is also used for plant dust control, applied by a water truck along dirt and gravel roadways throughout the facility. Any runoff from dust control is eventually collected at Water Recycle Tank A. There is no discharge to surface waters of either treated domestic wastewater or stormwater under normal operating conditions.
7. California Water Code Section 13512 states that it is the intention of the legislature that the State undertake all possible steps to encourage development of water reclamation facilities so that reclaimed water may be made available to help meet the growing water demands of the State.

Section 13523 provides that a regional board, after consulting with and receiving the recommendations of the State Department of Health Services, and if it determines such action to be necessary to protect the public health, safety, or welfare, shall prescribe water reclamation requirements for water which is used or proposed to be used as reclaimed water. The use of reclaimed water for the purposes specified in Finding 2, could affect the public health, safety, or welfare, and requirements for those uses are, therefore, necessary in accordance with the California Water Code.

Section 13576(e) states that the use of reclaimed water has proven to be safe from a public health standpoint and that the State Department of Health Services is updating regulations for the use of reclaimed water.

8. This Order's requirements conform with and implement the water reclamation criteria of the State Department of Health Services (Title 22, Division 4, Chapter 3, Sections 60301-60355 of the California Code of Regulations [CCR]) to protect the public health, safety, and welfare.
9. The Board amended its Water Quality Control Plan for the San Francisco Bay Basin (Basin Plan) on September 16, 1992, and the State Water Resources Control Board (State Board) approved it on April 27, 1993. The Basin Plan supports water reclamation and further states that the disposal of wastewater to inland, estuarine, or coastal waters is not considered a permanent wastewater disposal solution where the potential exists for

conservation and reclamation. The Basin Plan prescribes water quality objectives for reclaimed water, as well as for ground and surface waters of Santa Clara County. The Basin Plan identifies beneficial uses of the underlying groundwaters as:

- Industrial service and process water supply
- Municipal and domestic supply
- Agricultural supply

The Basin Plan identifies beneficial uses of the surface waters of South San Francisco Bay and its tributaries as:

- Water contact recreation
- Non-water contact recreation
- Wildlife habitat
- Preservation of rare and endangered species
- Estuarine habitat
- Fish migration
- Fish spawning
- Industrial service and process supply
- Shellfish harvesting
- Navigation
- Commercial and sport fishing

10. Effluent limitations of this Order are based on applicable CCR Title 22 regulations, the Basin Plan, State Plans and policies, current plant performance, and best professional judgment. The limitations are considered to be those attainable by best available technology, in the judgment of the Board.
11. The proposed uses of reclaimed water will maintain and enhance natural resources, and thus this Order is categorically exempt from the provisions of the California Environmental Quality Act in accordance with Title 14, California Administrative Code, Chapter 3, Section 15307.
12. The Board has notified the Producer and interested agencies and persons of its intent to prescribe water reclamation requirements for the proposed uses, and has provided them with an opportunity for a public hearing and to submit their written views and recommendations.
13. The Board, at a public meeting, heard and considered all comments pertaining to these proposed uses of reclaimed water.

IT IS HEREBY ORDERED, that the Kaiser Cement Corporation (Producer), in order to meet the provisions contained in Division 7 of the California Water Code and regulations adopted thereunder, shall comply with the following:

A. Reclaimed Water Quality Specifications

1. Restricted Quality Reclaimed Water (23 MPN)

The Producer shall assure that reclaimed water to be used for cement kiln flue gas conditioning and dust compaction shall at a minimum be an adequately oxidized and disinfected water that meets the following quality limits prior to delivery for any such use at all times:

- |    |                         |  |
|----|-------------------------|--|
| a. | BOD (5-day, 20°C)       | 30 mg/L monthly average  |
| b. | Total Suspended Solids  | 30 mg/L monthly average  |
| c. | Dissolved Oxygen        | 1.0 mg/L minimum   |
| d. | Dissolved Sulfide       | 0.1 mg/L maximum   |
| e. | Total coliform bacteria | At any point downstream of the disinfection facilities after adequate contact with disinfectant, the median number of total coliform organisms shall not exceed 23 MPN/100 mL as determined from the bacteriological results of the last seven (7) days for which analyses have been completed, and the number of total coliform organisms shall not exceed 240 MPN/100 mL in any two consecutive samples. |

2. The Producer shall discontinue delivery of reclaimed water during any period in which it has reason to believe that the limits for that use as specified in A.1 of this Order are not being met. The delivery of reclaimed water shall not be resumed until all conditions which caused the limits to be violated have been corrected.
3. The State Department of Health Services is currently revising the Title 22 regulations for water reuse. When revised regulations are finalized, the Executive Officer may authorize changes to the restricted reclaimed water uses consistent with those regulations.

B. Prohibitions

1. The treatment, storage, distribution, or reuse of reclaimed water shall not create a nuisance as defined in section 13050(m) of the California Water Code.
2. No reclaimed water used for dust compaction shall be applied during periods of rainfall or when soils are saturated such that runoff occurs.

3. No reclaimed water shall be discharged from the treatment facilities, holding tanks, storage ponds, or other containment, other than for industrial reuse or into tanker-trucks for dust control, in accordance with this Order.
4. No reclaimed water shall be discharged to Permanente Creek.
5. Reclaimed water shall not be used as a domestic or animal water supply. There shall be no cross-connections between the potable water supply and pipes containing reclaimed water. Supplementing reclaimed water with water used for domestic supply shall not be allowed except through an air-gap separation. An air-gap or reduced pressure principle backflow device shall be provided at all domestic water service connections to reclaimed water use areas.

C. Provisions

1. The Producer shall comply with the self-monitoring program as adopted by the Board and as may be amended by the Executive Officer.
2. The Producer will be responsible for ensuring that reclaimed water meets the quality standards of this Order and for operation and maintenance of treatment facilities, pump stations, and associated appurtenances. The Producer will also be responsible for the application of reclaimed water at the specified use areas and associated operations and maintenance.
3. The Producer shall maintain in good working order and operate as efficiently as possible any facility or control system installed by the Producer to achieve compliance with the water reclamation requirements.
4. The Producer shall provide employee training to assure proper operation of the Kaiser Wastewater Treatment Facility and the Kaiser Cement Plant water reuse system, worker protection, and compliance with this Order.
5. The Producer shall assure that all above ground equipment, including pumps, piping, tanker-trucks, storage reservoirs, and valves, etc. which may at any time contain reclaimed water shall be adequately and clearly identified with warning signs. The Producer shall make all necessary provisions to inform employees and visiting public that the liquid being distributed is reclaimed water and is unfit for human consumption.
6. Reclamation facilities shall be operated in conformance with the California Department of Health Services' "Guidelines for Use of Reclaimed Wastewater for Irrigation and Impoundment" and "Guidelines for Worker Protection at Reclamation Use Areas" and the American Water Works Association, California-Nevada Section's *Guidelines for the Distribution of Non-potable Water*.
7. The Producer shall permit the Board or its authorized representative in accordance with California Water Code Section 13267(c):

- a. Entry upon premises where a regulated facility or activity is located or conducted, or where records are kept under the conditions of the Order.
  - b. Access to and copy of any records that must be kept under the conditions of this Order.
  - c. Inspection of any facility, equipment (including monitoring and control equipment), practices, or operations regulated or required under this Order.
  - d. To photograph, sample, and monitor for the purpose of assuring compliance with this Order.
8. The Board will revise this Order periodically and may revise these requirements when necessary.

I, Steven R. Ritchie, Executive Officer, do hereby certify the foregoing is a full, true, and correct copy of an Order adopted by the California Regional Water Quality Control Board, San Francisco Bay Region, on March 16, 1994.

  
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STEVEN R. RITCHIE  
EXECUTIVE OFFICER

Attachments:

- A. Figure 1 -- Kaiser Cement Plant Water System
- B. Self-Monitoring Program
- C. DOHS Guidelines for Use of Reclaimed Wastewater for Irrigation and Impoundment
- D. DOHS Guidelines for Worker Protection at Water Reclamation Use Areas

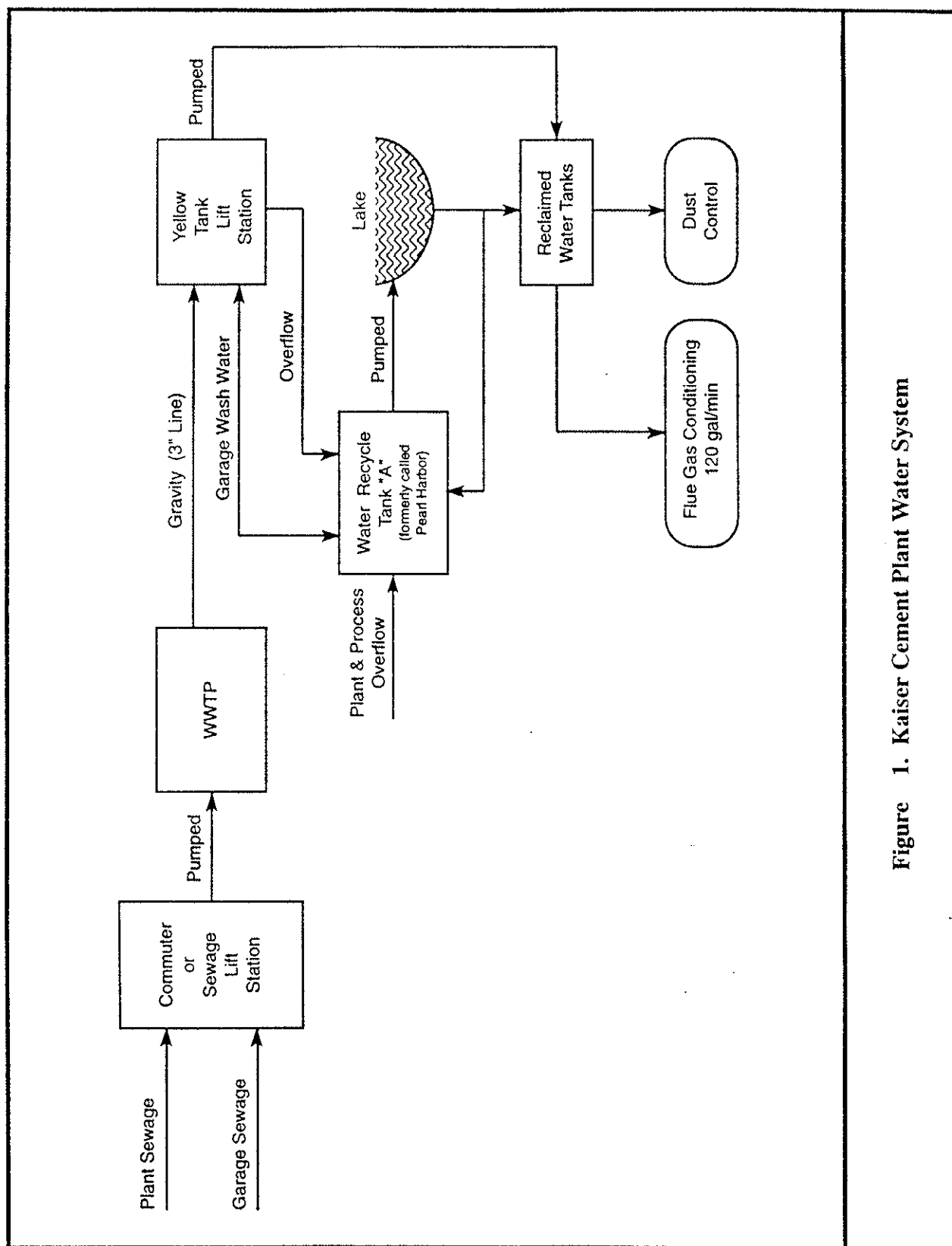


Figure 1. Kaiser Cement Plant Water System

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD  
SAN FRANCISCO BAY REGION

SELF-MONITORING PROGRAM

FOR

KAISER CEMENT CORPORATION, PERMANENTE FACILITY

WASTEWATER TREATMENT FACILITY

CUPERTINO

SANTA CLARA COUNTY

ORDER NO. 94-038

CONSISTS OF

PART A



## PART A

### I. GENERAL

Reporting responsibilities of waste dischargers are specified in Sections 13225(a), 13267(b), 13268, 13383, and 13387(b) of the California Water Code and the San Francisco Bay Regional Board's Resolution No. 73-16.

The principle purposes of a monitoring program by a Producer of reclaimed water, also referred to as a self-monitoring program, are:

1. To document compliance with water reclamation requirements and prohibitions established by this Regional Board; and
2. To facilitate self-policing by the Producer in the prevention and abatement of pollution arising from water reclamation.

### II. RECLAIMED WATER SAMPLING AND ANALYSIS

The Producer shall document effluent quality under their regular facility Water Reclamation Requirements self-monitoring program (Attachment A). See below for any violations related to the water reuse program.

### III. REPORTS TO BE FILED WITH THE REGIONAL BOARD

#### 1. Violation of Requirements

In the event the Producer is unable to comply with conditions of the water reclamation requirements and prohibitions, the Producer shall notify the Regional Board in writing within two weeks of the non-compliance. The written report shall include pertinent information explaining reasons for non-compliance and shall indicate what steps are being taken to prevent the problems from recurring.

#### 2. Quarterly Self-Monitoring Reports

Written reports shall be prepared by the Producer for each calendar quarter (ending March, June, September and December). Reports shall be submitted to this Regional Board's office no later than the fifteenth day of the month following the end of each quarter. The reports shall consist of the following:

##### a. Letter of Transmittal

A letter transmitting self-monitoring reports should accompany each report. Such a letter shall include a discussion of requirement violations found during the reporting period, and actions taken or planned for correcting noted violations, such as operation or facility modifications. If the Producer has previously submitted a report describing corrective

actions and/or a time schedule for implementing the corrective actions, reference to the previous correspondence will be satisfactory.

The transmittal letter shall contain a statement by the Producer, or the Producer's authorized agent, under penalty of perjury, that to the best of the signer's knowledge the report is true, accurate, and complete.

b. Results of Analyses, Observations, and Inspections

Tabulations of the results from each required analysis by Producer specified in Table 1 (Attachment A) by date, time, type of sample, and station.

3. Annual Self-Monitoring Report

An annual report for each calendar year shall be submitted to the Board by January 30 of the following year. This report may be combined with the fourth quarterly report. The report shall include a summary of information in the quarterly reports (flow data, water quality data, etc.), a summary of required inspections, a summary of violations, if any, and corrective actions taken.

IV. STANDARD OBSERVATIONS

1. Evidence of runoff of reclaimed water from the site (show affected area on a sketch, and estimate volume).
2. Odor from reuse site: If present, indicate apparent source, characterization, direction of travel, and any public use areas or offsite facilities affected by the odors.
3. Evidence of ponding of reclaimed water, and/or evidence of mosquitoes breeding within the cement plant area due to ponded water.
4. Warning signs properly posted (e.g., on storage tanks and tanker trucks) to inform employees and visiting public that water is reclaimed water, which is not safe for drinking or direct contact.
5. Evidence of leaks or breaks in the plant water reuse system pipelines or tubing.

V. DESCRIPTION OF SAMPLING AND OBSERVATION STATIONS

1. RECLAIMED WATER

<u>Station</u>	<u>Description</u>
E-1	Triangular weir in the channel between the secondary clarifier and the chlorine contact basin, where effluent flow can be measured.

E-2                      Sampling port just upstream of the yellow tank lift station where a representative sample of disinfected treatment plant effluent can be obtained.

2.     INDUSTRIAL PROCESS OBSERVATION STATIONS

<u>Station</u>	<u>Description</u>
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I-1 to I-n	Locations at a sufficient number of points at reuse areas in order to ensure compliance with water reclamation requirements.
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3.     IMPOUNDMENT FACILITIES

<u>Station</u>	<u>Description</u>
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P-1 to P-n	Locations at points along the periphery of each storage tank or other pond or impoundment.
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VI.   SCHEDULE OF SAMPLING, MEASUREMENTS, AND ANALYSIS

1.     The self-monitoring program is applicable during the periods when reclaimed water is being produced. The Producer is required to perform observations, sampling, measurements, and analyses according to the schedule given in Table 1 (Attachment A).
2.     The Producer shall conduct a complete inspection of the Wastewater Treatment Facility and all pipelines, kiln flue gas conditioning loops, pump stations, and reclaimed water storage facilities at least once each year. A report of the findings of these inspections, including descriptions of any repairs or modifications made to the treatment or distribution systems, shall be submitted in the annual report (due January 30 of each year).

I, Steven R. Ritchie, Executive Officer, hereby certify that the foregoing Self-Monitoring Program:

1. Has been developed in accordance with the procedure set forth in this Regional Board's Resolution No. 73-16 in order to obtain data and document compliance with Waste Discharge Requirements established in Regional Board Order No. 94-038.
2. Has been ordered by the Board on March 16, 1994.
3. May be reviewed at any time subsequent to the effective date upon written notice from the Executive Officer or request from the Producer, and revisions will be ordered by the Executive Officer.

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STEVEN R. RITCHIE  
EXECUTIVE OFFICER

Attachment: Table 1 - Schedule for Sampling, Measurements, and Analysis

TABLE 1

SCHEDULE FOR SAMPLING, MEASUREMENTS, AND ANALYSIS  
Kaiser Cement Corporation, Permanente Facility - Water Reclamation  
Order No. 94-038

SAMPLING STATIONS	E-1	E-2	All I	All P
TYPE OF SAMPLE	Cont.	Grab	Obs.	Obs.
Flow Rate (gallons/day)	3/W			
Total Coliform (MPN/100ml)		2/M		
Turbidity (NTU)		W		
BOD <sub>5</sub> , 20°C (mg/l)		2/M		
Total Suspended Solids (mg/l)		2/M		
Dissolved Oxygen (mg/l)		W		
Dissolved Sulfides (mg/l) (if DO < 1 mg/l)		W		
pH (units)		W		
Chlorine Residual (mg/l)		2/M		
Applicable Standard Observations			2/M	2/M

## LEGEND FOR TABLE 1

Type of Sample

Grab = Instantaneous grab sample  
Cont. = Continuous monitoring  
Obs. = Observation

Sampling Frequency

3/W = Three times per week  
W = Weekly  
2/M = Twice per month